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Montana GIS News

Natural Resource Information System, Montana State Library Summer 1992

Fifth Annual Montana GIS Conference

The Fifth Annual Montana GIS Conference: "Montana GIS: Tools for Analysis and Management" will be held in Butte November 30 - December 2. The hosts for this year's conference are the Butte/Silver Bow Planning Department and the Montana College of Mineral Science and Technology.

The annual Montana GIS Conference has grown from a group of 90 in 1988 to 340 users at the 1990 conference. Last year's conference in Bozeman attracted 250 users despite inclement weather and interstate road closures.

This year's conference will include a variety of presentations and events covering a wide number of current GIS issues. Features at this year's conference will include: a keynote address by Nancy Tosta, Chief, Branch of Geographic Data Coordination with the U.S. Geological Survey; a poster session of GIS map products; a panel discussion on GIS data access issues; public night for the local community to learn about GIS; pre-conference workshops for users to get intensive training on a selected GIS topic; and three concurrent session themes including an Urban Tract, a Natural Resources Tract, and a GIS Technologies Tract. There will also be an exhibit area for commercial vendors to show the latest in GIS hardware, software, and services. ♦

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Montana GIS Users Group Incorporates

Montana GIS Users' Group members attending the 1991 Montana GIS Conference voted to incorporate. Jon Sesso with Butte/Silver Bow has pursued implementation of this decision. Jon contacted Brad Belke, a Butte lawyer, who volunteered his services to begin the incorporation process for the User Group. The first step in incorporating is to file for incorporation with the Secretary of State. The following format was approved by the Conference Planning Committee at the July 30 meeting:

NAME:
Montana GIS Users' Group

START:
December 4, 1990

INCORPORATOR:
Jon Sesso
Butte Silver Bow Planning Dept.
155 W. Granite
Butte, MT 59701

AGENT:
Fred Gifford
Montana State Library
1515 East Sixth Avenue
Helena, MT 59620

PURPOSE:
GIS (Geographic Information System) refers to the computer hardware, software, geographic data, and personnel whose function is to capture, store, update, manipulate, analyze, and display in various forms, geographically related information. The term 'GIS' is generic, and is not limited to any particular manufacturer or select group.

The charter of the Montana GIS Users' Group, as ratified by its members, is to:

1) Sponsor the annual Montana GIS Conference, including the handling of necessary fiscal matters,
2) Publish a quarterly newsletter, and
3) Support activities designed to share information on GIS.

It will take several months to receive the tax-exempt status from the IRS. At the December GIS Conference, corporation board members will be elected by the User's Group. The corporation's Officers will be elected by the Board. Bylaws may be written, but are not absolutely necessary for incorporation. ♦

Montana Interagency GIS Technical Working Group Update

Since the December 1991 GIS Conference, the Montana Interagency GIS Technical Working Group has met three times. On February 19th at the University of Montana in Missoula, the TWG reviewed and incorporated public comments on the *Montana Geographic Information Systems Standards Plan.* Final edits were completed on the *Plan* during April and it was formally adopted at the May 11th meeting at Montana State University in Bozeman. Copies were distributed to TWG members at the August 26th meeting hosted by the Department of State Lands in Helena. Copies of the *Plan* will be distributed at the 1992 Montana GIS Conference in Butte. In addition, copies may be obtained from the TWG members or from the Montana Natural Resource Information System.

As stated in the *Standards Plan, the* "GIS Interagency TWG will maintain a permanent meeting agenda item for the identification and review of base data layers. The TWG will apply the data standards as described in Chapter 3 of the plan to assess whether a layer meets the standard. Additionally, the TWG

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will identify the best source available for each of the base layers listed" in Chapter 6, Section 6.1, and any future identified layers. "A data layer may be endorsed as an accepted base layer even if it does not meet the standards as described in Chapter 3 if the TWG determines it is the best available layer. The goal is that all base layers for the state will meet standards."

The process described above began at the August meeting when the TWG heard reports from members on several base data layers. The results of the TWG actions are listed below in Table 1. Detailed evaluations and reports will be compiled and distributed as updates to Chapter 6 of the *Montana Geographic Information System Standards Plan.*

Randy Matchett of the U.S. Fish and Wildlife Service presented a report on the status of GPS in Montana. This report outlines public and private section GPS owners and base station locations. Copies of the report will be available at the GIS Conference in Butte. Copies may also be obtained from NRIS.

Kristin Gerhart (Soil Conservation Service), assumed the Chair of the TWG at the May meeting. Gerhart served as Vice-chair for 1991. Christine Ryan, Geographic Information and Analysis Center at Montana State University, was elected Vice-chair for 1992. Ryan will become the Chair in 1993 and a federal representative will be elected Vice-chair. NRIS will continue to provide administrative support. ♦

PROJECT SPOTLIGHT

State Information Services Division uses GIS

The State of Montana Information Service Division (ISD) is mandated to provide computing and communications support to state agencies. In 1991, the 52nd Legislature authorized ISD to expand its policy, research, and development activities relating to public safety communications. Through close association with the State 9-1-1 Program, a Local Government Services Section was formed to provide greater assistance to state and local government agencies.

As part of the Local Government Services Section the ISD Public Safety Communications Program is focused primarily on radio communications as used by police, fire, ambulance, and other emergency services. The Public Safety Communications Program is responsible for developing frequency utilization plans, policies and procedures for the use of shared frequencies, and generalized communications plans for emergency response. Through the FCC's recognized frequency coordinators, the program assists public safety agencies and organizations with licensing radio systems.

Recently, a project was begun to put advanced computer technology to work in carrying out these responsibilities. A geographic information system (GIS) is being developed to assist in frequency coordination and technical systems analysis. In December, the program began development of the GIS on a Sun SPARCstation 2, running ARC/INFO software. The Sun is a UNIX-based workstation well accepted for GIS applications. ARC/INFO provides powerful spatial analysis and representation tools for geographic data.

The ISD Spectrum Management System, as this combination of hardware and software is being called, will provide greatly increased capabilities for frequency coordination. It will allow radio propagation analyses which account for terrain. Its greatest value may be in the graphical display of existing frequency assignments relative to political boundaries, population centers, and highways. The database management capabilities of GIS are closely integrated with its geographic processing capabilities, yielding a

Base Layer Name	TWG Endorsement	Meets Standards	Availability	Scale
Vegetation	Yes	Yes	In Progress (Due mid-1994) from the GAP Project	1:100,000
Ownership (Surface & Sub-surface Management	Yes	Yes	In Progress (Due mid-1994) from BLM (tentative)	1:100,000
Geographic Names Information System	Yes	Not Applicable	Available from NRIS	Not Applicable
Hydrography	No	No	*No acceptable hydro layer exists for the state*	
Census Geography	Yes	Yes	Available from NRIS	1:100,000

TABLE 1

Representative	Agency	Location
Kristin Gerhart	US Soil Conservation Service	Bozeman
Christine Ryan	Geographic Information and Analysis Center -Montana State University	Bozeman
Craig Bacino	Reserved Water Rights Compact Commission	Helena
Dave Briar	US Geological Survey	Helena
Sharon Burt	Montana Tech	Butte
Janet Cherry	Montana Department of Natural Resources and Conservation	Helena
Don Cromer	Montana Department of Transportation	Helena
Dean Chaussee Julie DalSoglio	US Environmental Protection Agency	Helena
Darl Enger Bill Tanke	US Forest Service	Missoula
Fred Gifford	Natural Resource Information System	Helena
Paul Hyndman	US Bureau of Mines and Geology	Spokane, Washington
Kathy Jewell	US Bureau of Land Management	Billings
Brian Long Loretta Reichert	Montana Department of State Lands	Missoula Helena
Don Luse	US Bureau of Indian Affairs	Billings
Randy Matchett	US Fish and Wildlife Service	Lewistown
Steve Sherer	Bonneville Power Administration	Portland, Oregon
CloAnn Villegas	Confederated Salish and Kootenai Tribes	Pablo
Ken Wall Hans Zuuring	School of Forestry - University of Montana	Missoula

system suitable for complex analysis.GIS is an exciting new tool for spectrum management. The U.S. Department of Commerce, Institute for Telecommunications Sciences, is very interested in ISD's work and has been following it from the beginning. Their spectrum management staff in Boulder, Colorado have been helpful in some of the more technical aspects of radio propagation modeling. They have plans to develop their own GIS system in the future.

Within the State of Montana, the Natural Resources Information System (NRIS) staff with the State Library have been indispensable. They have contributed their generic display interface and several valuable map layers. Current plans are to use NRIS' electrostatic plotter for the occasional hardcopy maps and plots produced with the Spectrum Management System.

ISD's public safety communications function will be greatly enhanced with this new system, but people will always be its primary focus. Communications systems for police, fire, ambulances, and search and rescue, among others, are critical for the safety and well being of Montanans. Technology is only helping us support those systems for better public safety and service.

Dan Hawkins

Taken from: ISD News and Views
Vol 9 No. 10. ♦

Status of Selected GIS Projects

Department of Transportation Map Conversion Project

The Montana Department of Transportation (DOT) has made significant progress in their map automation project. The first phase of the project includes automating 293 1 inch to the mile county maps for the entire state and their supplementals. The maps will include 57 layers of information and will be in NAD 83 state plane single zone coordinates. Map conversion is progressing west to east and north to south and is currently three quarters complete. Don Cromer, with DOT, expects Ferguson Cartotech/Cantex, the conversion vendor, to finish digitizing the maps on or before the scheduled December completion date.

Phase 2 of the project will involve digitizing the DOT's maps of 128 incorporated cities and 131 unincorporated cities.

All data produced under this project will be available to Montana GIS users.

Montana Forest Productivity Project - University of Montana, Montana Department of Revenue

The University of Montana (UM) has undertaken to produce a series of 1:15840 scale maps that will be used by the Montana Department of Revenue for taxing privately-owned commercial forested lands. These maps will show color-coded zones of potential productivity for commercial forested lands, nonforested and noncommercial lands as well as Public Land Survey (PLSS), ownership boundaries, roads, rivers, and other cartographic features.

The project consists of seven major modules:

1. **Productivity Estimation.** Climate and productivity modules are used to provide estimates of potential productivity at one acre resolution. This phase does not determine how much forest exists but predicts the potential productivity of a forest for a given topographic/soil/climate combination.
2. **Land Classification.** This step involves applying the classes generated in Step 1 to all land areas in the project.
3. **Forest/Non-forest Boundaries.** Determination of forest boundaries will be accomplished primarily by analyzing Landsat Thematic Mapper (TM) images. Aerial photographs, historical records, and the estimated productivity values developed in modules 1 and 2.
4. **Validation of Productivity estimates.** Establishment of estimates on the accuracy of the land classification and the resulting productivity estimates. This will entail verifying the land classifications that underlie the productivity estimates.
5. **Legal Boundaries.** PLSS boundaries and public (USFS, BLM, State, BIA) versus private ownership boundaries will be acquired from DOT.
6. **Map Development.** One map will be produced for every township in the project area. Preliminary maps will be submitted to the Department of Revenue prior to full scale map production.
7. **Support.** Project leaders from the University will assist Department of Revenue staff in Revenue Oversight Hearings, public informational hearings, state tax appeal hearings, and other meetings.

Ken Wall with the School of Forestry at UM reports that the project is proceeding on schedule. This summer the major focus has been on determination of forest boundaries (module 7). Some unexpected difficulties in this phase have involved distinguishing hardwood stands from brush and clear cut areas from natural meadows.

Ken reports that he and Roly Redmond, who is working on the University of Montana Cooperative Wildlife Research Unit GAP Analysis Project, have been

cooperating extensively on image analysis phases of their projects.

The first maps produced under this project are scheduled to be delivered to the Department of Revenue in March of 1993. ♦

AROUND THE STATE

Dan Olson formerly with The Montana Bureau of Mines and Geology has established **GEODATA** a computer based data management firm, in Butte.

Desktop Assistance, a Helena non-profit management organization that provides computer and communication technical assistance to non-profit organizations, is currently working with the Montana Water Quality Bureau and the Blackfoot Conservation Cooperative Council to provide training and long-range planning for future development of the Blackfoot Watershed GIS.

Vestra Resources has established a branch office in Helena. Mark Tepley is the Director and Senior GIS Analyst of that office.

Allan Cox has been named as Director of the Natural Resource Information System (NRIS) with the Montana State Library. Allan's previous position was as GIS Coordinator for NRIS.

The Butte/Silver Bow Planning Department has appointed **Jon Sesso** as the new director. Jon was formerly the NRIS Director.

Fred Gifford has assumed the position of GIS Coordinator at NRIS. Fred comes to Montana from Redlands, California where he was GIS Coordinator for the County of San Bernadino.

Stu Kirkpatrick has accepted the position of GIS Specialist with the Butte/Silver Bow Planning Department. **Duane Lund** replaced Stu Kirkpatrick at the NRIS Program. Duane is from Outlook and was formerly employed by the Fort Peck Tribe.

Kristina Sacks has been hired under contract with Fish, Wildlife and Parks to attach river reach codes to Montana streams. She is working out of the Montana State Library.

Loretta Reichert was hired by the Montana Dept. of State Lands, Reclamation Division, as a GIS Specialist.

Mary Jo Smith, formerly with the Yellowstone Co. Planning Office, has returned to school in Bozeman at MSU.

Around the State will be a regular feature of the Montana GIS News which features new developments with people and organizations involved with GIS in Montana. If you would like to make an announcement please contact Fred Gifford at (406) 444-5357. ♦

GIS TRAINING OPPORTUNITIES

Utah Automated Geo. Ref. Center
Salt Lake City, Utah 84114
801 538-3164

*Introduction to GIS, Oct.26-30, $600
*AML, November 2-3, $240
*Database, November 4, $120
*Map Display & Query, Nov.5-6, $240

Center for Advanced Land Management Information Technologies
The University of Nebraska-Lincoln
Lincoln, Nebraska 68588-0517
402 472-2565

*GIS & Remote Sensing for Water Resources, Sept.14-18, $500
*Advanced Techniques in GIS, Sept.21-25, $500

University of Vermont
Burlington, VT 05401
800 639-3188

*Information Management with GIS, Sept.10, $50

Montana GIS News is published by the Montana GIS User Group, a statewide consortium of Montana governmental agencies and businesses. It is published at NRIS in the Montana State Library. Send articles and information for publication to NRIS. To receive the *Montana GIS News*, contact:

Montana GIS News
Natural Resource Information System
Montana State Library
1515 East 6th Avenue
Helena, MT 59620
(406) 444-5354

- August 19-21, **Remote Sensing & Image Processing**, Denver, CO. Call 301-445-4400.
- Sept. 16-18, **47th Annual Regional Conference of the ASAE**(American Society of Agriculture Engineers, "Engineering Application of Modern Information Systems" Call 994-6121.
- October 6-9, **GISDEX '92**, Washington, DC. Call 301-445-4400.
- October 14-17, **North American Cartographic Information Society's Twelfth Annual Convention**, St. Paul, MN. Call 919-334-5388.
- November 6-12, **GIS/LIS '92**, San Jose, CA. Call 301-493-0200.
- November 30 - December 2, Fifth Annual Montana GIS Conference, Butte, MT. Call 406-723-8262
- February 15-18 1993, **GIS 93**, Vancouver, British Columbia, Canada. Call 604-688-1573.

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